Having thus described the invention, we hereby claim:

1.   A method for computing properties of an image represented by pixel values arranged in an array, a method comprising steps of:

scanning the array to determine the pixel values;

segmenting the array into blocks of the pixel values;

performing an associative operation on the pixel values of each block to determine properties of the each block;

storing the properties of the each block in a table;

providing a window defining a fixed size region of the image, the window having vertices and being configured such that a single vertice at most will be encompassed by any given block having portions within the fixed size region;

determining which portions of which blocks are within the fixed size region;

selecting a property for each portion of each block within the fixed size region from the table based on the determining of which portions of which blocks are within the fixed size region and locations of the vertices of the window; and,

performing the associative operation on the selected properties to determine an overall property for the fixed size region.

2.   The method as set forth in claim 1 wherein performing the associative operation on the pixel values comprises determining maximum pixel values.

3.   The method as set forth in claim 1 wherein performing the associative operation on the pixel values comprises determining minimum pixel values.

4.   The method as set forth in claim 1 wherein performing the associative operation on the selected properties comprises performing an operation to determine a maximum value.

5.   The method as set forth in claim 1 wherein performing the associative operation on the selected properties comprises performing an operation to determine a minimum value.

6.   The method as set forth in claim 1 wherein providing a window defining a fixed size region of the image comprises providing a window having a rectangular shape.

7.   The method as set forth in claim 1 wherein providing a window defining a fixed size region of the image comprises providing a window of octagonal shape.

8.   The method as set forth in claim 1 wherein providing a window defining a fixed size region of the image comprises providing a window of hexagonal shape.

9.   An apparatus for computing properties of an image represented by pixel values arranged in an array, the apparatus comprising:

means for scanning the array to determine the pixel values;

means for segmenting the array into blocks of the pixel values;

means for performing an associative operation on the pixel values of each block to determine properties for the each block;

means for storing the properties of the each block;

means for defining a fixed size region of the image;

means for determining which portions of which blocks are within the fixed size region;

means for selecting a property for each portion of each block within the fixed size region from the storing means; and,

means for performing the associative operation on the selected properties to determine an overall property for the fixed size region.

10.   The apparatus as set forth in claim 9 wherein the associative operation is a MINIMUM operation.

11.   The apparatus as set forth in claim 9 wherein the associative operation is a MAXIMUM operation.

12.   The apparatus as set forth in claim 9 wherein the properties of the block comprise minimum pixel values.

13.   The apparatus as set forth in claim 9 wherein the properties of the block comprise maximum pixel values.

14.   The apparatus as set forth in claim 9 wherein the defining means comprises a window having a rectangular shape.

15.   The apparatus as set forth in claim 9 wherein the defining means comprises a window of octagonal shape.

16.   The apparatus as set forth in claim 9 wherein the defining means comprises a window of hexagonal shape.

17.   The apparatus as set forth in claim 9 wherein the defining means comprises a window, the window having vertices and being configured such that a single vertice at most will be encompassed by any given block having portions within the fixed size region.

18.   A method for computing a property of a complex window for use in image analysis, the method comprising steps of:
        dividing the complex window into regions;
        computing the property for each region to obtain a partial result by conducting an associative operation; and,
        determining the property for the complex window based on partial results of the regions by conducting the associative operation on the partial results.

19.   The method as set forth in claim 18 wherein the property is a minimum value.

20.   The method as set forth in claim 18 wherein the property is a maximum value.

21.   The method as set forth in claim 18 wherein the complex window is an annulus.